d'où $z = 2\cos\left(\frac{\theta}{2}+\frac{\pi}{4}\right).e^{i\left(\frac{\theta}{2}-\frac{\pi}{4}\right)}$

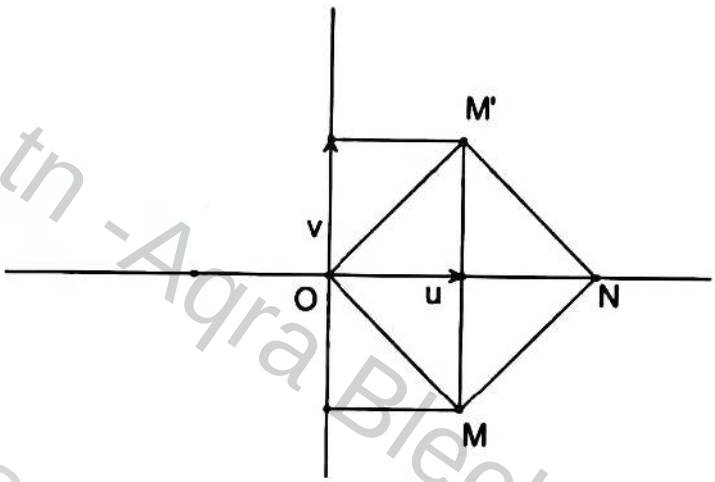
b) $\bar{z} = 2\cos\left(\frac{\theta}{2}+\frac{\pi}{4}\right)e^{-\left(\frac{\theta}{2}-\frac{\pi}{4}\right)} \Rightarrow \frac{z}{\bar{z}} = e^{i\left(\frac{\theta}{2}-\frac{\pi}{4}+\frac{\theta}{2}-\frac{\pi}{4}\right)} \Rightarrow \boxed{\frac{z}{\bar{z}} = e^{i\left(\theta-\frac{\pi}{2}\right)}}$

c) OMNM' est un carré si seulement si $\frac{z}{\bar{z}}$ est imaginaire pure

$\Leftrightarrow Arg\left(\frac{z}{\bar{z}}\right) \equiv \frac{\pi}{2}(\pi) \Leftrightarrow \theta - \frac{\pi}{2} = \frac{\pi}{2} + k\pi \ , \ k \in \mathbb{Z} \Leftrightarrow \theta = (k+1)\pi \ , \ k \in \mathbb{Z}$

$or\ \theta \in \left[0, \frac{\pi}{2}\right[$ $\quad d'ou\ \boxed{\theta = 0}$

d) $z_M = e^{i0} - i = 1 - i$; $z_N = 2\cos 0 = 2$; $z_{M'} = e^{-i0} + i = 1 + i$



EX 28 :

$z_A = 1 \qquad z' = \frac{\bar{z}+3}{z-1}$

1) $z_B = 1 - i$

a) $z_{B'} = \frac{\overline{z_B}+3}{z_B-1} = \frac{1+i+3}{1+i-1} = \frac{4+i}{i} \Rightarrow \boxed{z_{B'} = 1-4i}$

Qarray.tn -Aqra Blech- Qarray.tn